## STORMS AND WEATHER WARNINGS

## WASHINGTON FORECAST DISTRICT

Storm warnings were issued during the month in advance of four storms. They were southeast warnings in each instance and all were for the Atlantic coast from

Cape Hatteras northward.

The first disturbance of marked intensity that crossed the Washington Forecast District was central over northern Indiana the morning of the 9th, and storm warnings were displayed at 10 a. m. from Delaware Breakwater to Eastport, Me. Practically every station reported a verifying velocity, the highest being 48 miles an hour from the southwest at Nantucket, Mass.

During the 15th warnings were ordered displayed from Cape Hatteras to Eastport in connection with a storm of marked intensity then moving northeastward over the upper Lake region. A secondary disturbance developed over the southern Appalachian region the afternoon of the 15th and moved rapidly northeastward. As a result, gales were experienced generally along the coast from Wilmington, N. C., to Eastport. The wind attained a velocity of 72 miles an hour from the southeast at both New York City and Atlantic City.

The next warnings were displayed on the 18th and 19th from Delaware Breakwater to Boston and from Rockland, Me., to Eastport. Winds of gale force were reported only from Atlantic City and Eastport, inasmuch as the secondary disturbance for which they were issued did not increase materially in intensity as it advanced north-

eastward from western North Carolina.

The last warnings of the month were issued at noon of the 26th from Cape Hatteras to Eastport in advance of a storm of marked intensity and wide extent then central over lower Michigan. Nearly all stations reported winds of gale force, New York City and Block Island reporting 60 miles an hour from the northwest.

Small craft warnings were ordered on the 17th from Bay St. Louis, Miss., to Apalachicola, Fla., and warnings of strong northerly winds for the Canal Zone were issued on the 10th, 11th, and 16th.

Advisory warnings were issued from the 14th to the 16th, inclusive, in connection with a tropical disturbance of minor intensity that developed about 200 miles north of Colon, Canal Zone. This disturbance moved northwestward past Swan Island and later recurved toward the northeast. It passed over western Cuba the night of the 15th-16th and merged the following day with a trough of low pressure that extended southward from a disturbance of wide extent over the eastern half of the United States.

Cold wave warnings.—The following warnings were issued: 9th, for western Kentucky, northwestern Tennessee, and northwestern Ohio; 10th, for the northern portions of eastern New York and for northern New England; 26th, for the lower Lake region and the Ohio Valley; 27th for New England and the northern portion of eastern New York; 30th, for northern Ohio. These

warnings were fairly well verified.

Frost warnings.—Frost warnings were issued on 12 days during the month. Those issued on the 1st and 2d were for northern sections, and by the 3d killing frost had occurred almost generally except in the south Atlantic and east Gulf States. After the middle of the month the warnings were confined to the extreme South.—C. L. Mitchell. CHICAGO FORECAST DISTRICT

Storm warnings.—November, 1926, was an unusually stormy month on the Great Lakes. In fact, there were but few days without either strong winds or gales on at least some portion of the Lakes. At Buffalo, N. Y., on Lake Erie, gales occurred on one-half the days of the month. Storm warnings of some character had to be issued on 19 days, and small-craft warnings were called for on 5 additional days. Eleven disturbances crossed the Lakes, and of these the storms of the 8th-10th, 17th-20th, and 25th-27th were the most severe. In each of these three cases the barometric depression first moved from the far Northwest well to the southeastward across the Rocky Mountains to the southern or central Great Plains region and thence recurved and advanced northeastward toward the Great Lakes with increasing intensity. In the case of the storm of the 17th-20th, however, its force began to lessen about the time the center reached the Great Lakes, but winds of storm intensity had occurred over the upper lakes immediately preceding the arrival of the center there. Another fact of interest in connection with this disturbance is that it is difficult to trace its point of origin farther westward than the coast of Washington. Possibly this is owing to the absence of vessel reports from the Pacific Ocean for Sunday, the 14th.

The highest wind velocity reported from any Great Lakes station during the month was at the rate of 72 miles an hour from the southwest, at Buffalo, N. Y., on

the 9th.

In the great majority of cases the storm warnings were timely, but in a few cases winds of storm force occurred over limited districts without warnings. The most notable case of this kind was at Sault Ste. Marie, on Lake Superior, where for three hours on the early morning of the 24th the wind velocity equaled or exceeded the verifying velocity. In this connection, however, an advisory message had been sent to that station on the night of the 23d to the effect that a disturbance of increasing force was centered that night over northern Lake Superior and that it would cause rather strong winds on the lake during the following 12 to 24 hours.

Frost warnings.—Frost warnings were still needed in portions of the extreme southeastern part of the district at the beginning of the month. The final warning of this character for the season was issued for extreme southern

Illinois on the 4th.

Cold wave warnings.—These were issued on six dates, namely, the 9th, 17th, 18th, 25th, 26th, and 30th. Those on the first three dates were for areas in the extreme eastern part of the district, while the warnings on the last three dates covered larger geographic areas. This was especially true as to the warnings on the 30th, which included in their scope much of the northern and central portions of the district. Generally speaking, the cold wave warnings were well verified.

Stock warnings.—These were issued on only one occa-

sion, namely, on the 25th, for South Dakota, Nebraska,

and Kansas.—C. A. Donnel.

## NEW ORLEANS FORECAST DISTRICT

Warnings for frosts or freezing were issued for the northern portion of the district on several dates, and southward into the sugar and trucking region on the 9th, 10th, 15th, 17th, and 18th. Subsequent conditions justified the warnings.